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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/809,262	03/16/2001	Toru Tsukada	Q63051	6379

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WASHINGTON, DC 20037-3213

EXAMINER

KIM, CHONG HWA

ART UNIT	PAPER NUMBER
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3682

DATE MAILED: 02/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/809,262

Applicant(s)

TSUKADA ET AL.

Examiner

Chong H. Kim

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 17-23 and 25-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-23 and 25-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

The Examiner acknowledges the Applicant's Amendment filed Dec 16, 2003 in response to the Office action made on Jun 16, 2003 and canceling of claim 24.

#### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 17, 18, 21-23, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jelinek, U.S. Patent 4,053,167 in view of Yabe et al., U.S. Patent 6,004,039 and in view of Cartwright, U.S. Patent 4,177,997.

Jelinek shows, in Figs. 1-3, a feed screw device comprising;

a screw shaft 5;

a nut member 6 threadably engaging an outer periphery of the screw shaft;

a lubricant supply device 9 having an insertion hole formed in an outer periphery side thereof, the lubricant supply device coming in contact with the outer periphery surface of the screw shaft;

a retaining ring 11 for retaining the lubricant supply device, the retaining ring extends radially beyond the lubricant supply device;

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a projection 10 formed on the retaining ring and disposed so as to be received in the insertion hole, wherein the retaining ring is fastened to an outside circumferential end face of the nut member;

in which the nut member is provided with a recess portion 15, wherein the retaining ring retains the lubricant supply device within the recess portion;

wherein the retaining ring is fixedly secured to the nut member, and the projection formed on the retaining ring prevents the lubricant supply device from rotating with the screw shaft;

in which the portion of the lubricant supply device which contacts the outer peripheral surface of the screw shaft comprises a rubber or synthetic resin material;

wherein the retaining ring is disk-shaped; and

wherein the projection is a tab formed from an outwardly bent portion of the retaining ring;

but fails to show a portion of the lubricant supply device which contacts the outer peripheral surface of the screw shaft comprising a material including a lubricant; the projection extending circumferentially less than all of the way around the screw shaft; and a spiral projection.

As to the matter of the lubricant containing lubricant supply device, Yabe teaches a lubricating structure comprising a lubricant supply device 4a coming in contact with the outer periphery surface of the shaft such that a portion of the lubricant supply device which contacts the outer peripheral surface of the screw shaft comprising a material including a lubricant.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the seal device of Jelinek with the lubricant supply device containing a lubricant as taught by Yabe et al. in order to provide a more effective lubricating device for a screw feed device so that the feed device would last longer.

As to the matter of the projection that is circumferentially less than 360 degrees, Cartwright shows, in Fig. 1, a projection 118 formed on a retaining ring 44 and disposed so as to be received in an insertion hole 110 formed in a lubricant supply device 128, such that the projection extends circumferentially less than all of the way around a shaft 12.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the cylindrical projection of Jelinek with the tab-like projection as taught by Cartwright in order to reduce the material of Jelinek thus decreasing the weight and reduce the material cost.

As to the matter of the spiral projection, Jelinek shows a projection 14 formed on an inner peripheral surface of the lubricant supply device, the projection fitting into a thread groove 4 of the screw shaft. It would have been obvious to make the projection a spiral or a helical form in Jelinek since the examiner takes Official Notice of the fact that it is a common practice in the art of screw feed device to employ a seal that has a matching spiral projection to fit into a groove formed on the screw shaft and would be within the level of ordinary skill in the art to implement such projection.

3. Claims 19 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jelinek, U.S. Patent 4,053,167 in view of Yabe et al., U.S. Patent 6,004,039 and in view of Cartwright,

U.S. Patent 4,177,997 as applied to claim 17 above, and further in view of Spontelli, U.S. Patent 2,818,745.

Jelinek in view of Yabe et al. and in view of Cartwright shows, as discussed above in the rejection of claim 17, the feed screw device comprising the lubricant supply device, but fails to show a cut part in the circumferential direction in the lubricant supply device.

Spontelli shows, in Figs. 2-5, the feed screw device comprising a wiper assembly (or lubricant supply device) 17 comprising a cut part (as shown in Fig. 5) in the circumferential direction; wherein the cut part extends radially from an innermost circumferential surface of the lubricant supply device to an outermost circumferential surface of the device.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the lubricant supply device of Jelinek in view of Yabe et al. and in view of Cartwright with the wiper assembly having a cut part as taught by Spontelli in order to provide a more engaging device so that the supply of the lubricant and preventing of the dust can be realized to increase the life expectancy of the feed screw device.

4. Claims 17, 18, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsson, U.S. Patent 3,532,004 in view of Masutani et al., U.S. Patent 5,401,574 and in view of Sugihara et al., U.S. Patent 5,695,288 and in view of Jelinek, U.S. Patent 4,053,167.

Nilsson shows, in Fig. 1, a feed screw device comprising;

a screw shaft 10;

a nut member 11 threadably engaging an outer periphery of the screw shaft;

a lubricant supply device 15 coming in contact with the outer periphery surface of the screw shaft;

a retaining ring (an element that covers the seal) for retaining the lubricant supply device, the retaining ring extends radially beyond the lubricant supply device;

in which the nut member is provided with a recess portion, wherein the retaining ring retains the lubricant supply device within the recess portion;

in which the lubricant supply device comprises a plurality of lip parts projecting toward the screw shaft and which come in sliding contact with the outer peripheral surface of the screw shaft;

wherein the retaining ring is fixedly secured to the nut member;

wherein a spiral projection is formed on an inner peripheral surface of the lubricant supply device, the spiral projection fitting into a threaded groove 12 of the screw shaft; and

wherein the retaining ring is fastened to a circumferential end face of the nut member;

but fails to show a portion of the lubricant supply device comprising a material including a lubricant; a projection formed on the retaining ring to be disposed in an insertion hole formed in an outer periphery of the lubricant supply device; and the retaining ring being fastened to an outside circumferential end face of the nut member.

As to the matter of the lubricant supply device including lubricant material, Masutani et al. discloses a lubricant supply device comprising a rubber material including a lubricant or a synthetic resin material including a lubricant.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the sealing and cleaning lubricant supply device of Nilsson with

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the synthetic resin lubricant supply device having a lubricant therein as taught by Masutani et al. in order to provide a less maintenance that reduces labor cost to maintain.

As to the matter of a projection formed on the retaining ring, Sugihara et al. shows, in Fig. 4, a retaining ring 78 for retaining a lubricant supply device 77; a projection 75 formed on the retaining ring and disposed so as to received in the insertion hole, such that the projection extends circumferentially less than all of the way around the screw shaft; the projection formed on the retaining ring prevents the lubricant supply device from rotating with the shaft 71.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to utilize the projection as suggested by Sugihara et al. on the retaining ring of Nilsson in order to provide a more securing device to prevent relative movement between the lubricant supply device and the nut member so that more foreign particles may be prevented from entering the device.

As to the matter of the retaining ring being fastened to an outside circumferential end face of the nut member, Jelinek shows, in Fig. 3, a retaining ring 11 for retaining the lubricant supply device, the retaining ring extends radially beyond the lubricant supply device; and a projection 10 formed on the retaining ring and disposed so as to be received in the insertion hole, wherein the retaining ring is fastened to an outside circumferential end face of the nut member.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the retaining ring attachment of Nilsson with the outside fastening retaining ring as taught by Jelinek in order to provide an easier method of assembly so that cost of labor and manufacturing can be reduced.



***Response to Arguments***

5. Applicant's arguments, see Amendment, filed Dec 16, 2003, with respect to the rejections made under 35 USC 102(e) being anticipated by Yabe et al. have been fully considered and are persuasive. The previous rejection by Yabe et al. has been withdrawn.

6. Applicant's arguments with respect to claims 17-25 as being rejected by Nilsson in view of Masutani et al., Sugihara et al., and Spontelli have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

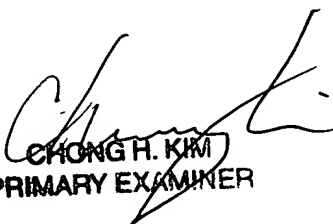
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chong H. Kim whose telephone number is (703) 305-0922. The examiner can normally be reached on Tuesday - Friday; 8:00 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Bucci can be reached on (703) 308-3668. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

chk  
February 11, 2004

  
CHONG H. KIM  
PRIMARY EXAMINER